

SHIPS-T-5976A  
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4.2.1.4 (U) Coherent Noise. (U) TAA coherent noise shall be determined in accordance with the following measurement procedure.

- a. (U) The system electronic noise floor shall be measured at the beamformer's sum-beam output for a relative bearing of 90° (broadside) for each aperture. The Government approved TATS and beamformer shall be used to make these measurements with the towed body configured in a Government approved test facility.
- b. (U) Using the expression,

$$SPL = E - S - XFR$$

where: SPL = equivalent broadside sum-beam output acoustical sound pressure level, SPL, spectrum in dB// $\mu\text{Pa}^2/\text{Hz}$ ,

E = measured broadside sum-beam output voltage spectrum in dB//V/Hz,

S = array receiving sensitivity in dB//V/ $\mu\text{Pa}^2/\text{Hz}$ , and

XFR = Government approved TATS to beamformer electrical transfer function in dB.

(U) Adjust the measured system electronic noise spectrum to an equivalent acoustical SPL by applying the array receiving sensitivity and electrical gain (transfer function) between the Government approved TATS and beamformer.

- c. (U) Compute the root mean square (RMS) value of the preceding SPL spectrum as the power summation of the SPL level at each frequency point in the pass band of the aperture. The following expression should be used for this computation:

$$SPL_{MEAS_{rms}} = 10 \times \log \left\{ \sum_i \log^{-1} \left( \frac{SPL_i}{10} \right) \right\}$$

where:  $SPL_{rms}$  = RMS value of the broadside sum-beam output acoustical SPL spectrum in dB// $\mu\text{Pa}^2$ ,